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AUTHOR(S):

DIRA, Samuel Jilo; HEWLETT, Barry S.

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CULTURAL RESILIENCE AMONG THE CHABU FORAGERS IN SOUTHWESTERN ETHIOPIA

Samuel Jilo DIRA
Department of Anthropology, St. Lawrence University
Barry S. HEWLETT
Department of Anthropology, Washington State University, Vancouver

ABSTRACT Anthropologists have described the remarkable contemporary hunter-gatherer resilience to environmental degradation and global capitalism. The literature is abundant in detailed accounts of how foragers respond to changes as observed by ethnographers. By contrast, relatively few studies exist on how the local people perceive and rank the social-ecological risks and acknowledge the indigenous strategies they call upon. This paper examines how the Chabu foragers in Ethiopia perceive socioecological risks and their coping strategies under dramatic culture change. Freelists and unstructured interviews with adult men and women indicate that deadly diseases and sporadic food shortages due in part to encroachments of immigrant farms and coffee plantations as the highest ranked threats to their survival. Despite these challenges, the Chabu values of sharing and helping others, flexibility in adopting new subsistence knowledge and practices, and their extensive ecological knowledge about the forest provided them with the strategies to withstand difficult times. The Chabu perception of risks and the cultural identity reflected in their survival strategies enhance our understanding and provide potential insights into the diverse challenges facing contemporary foraging societies.

Key Words: Chabu; Foragers; Risk factors; Resilience strategies.

INTRODUCTION

Contemporary foragers have experienced multiple and continuous challenges associated with a) changes in their natural environment, b) colonial and neocolonial invasions, and c) the spread of global capitalism (von Bremen, 2000; Bodley,1990; Fortier, 2009; Gurven et al., 2015; Hewlett, 2000; Hitchcock, 2016; Hitchcock & Sapignoli, 2016; Lewis, 2005a; Minter, 2010; Reyes-Garcia & Pyhälä, 2017). Among other factors, research indicates that climate change, resource depletion, food shortage, poverty, high mortality rates, encroachments of farming, local and international logging, displacement, exploitative relationships with outsiders, conflicts, and acculturation threaten the cultural and physical survival of foragers (Dira & Hewlett, 2017; Hewlett, 1991; Hitchcock, 2016; Ichikawa, 2014; Lewis, 2005a; Minter, 2010; Reyes-Garcia & Pyhälä, 2017). As a result, most foragers in today's world live in a "transitional landscape" and are under pressure to adopt a farming and a sedentary lifestyle (Hitchcock & Sapignoli, 2016: 89; Reyes-Garcia & Pyhälä, 2017).

On the other hand, several archeological, ethnographic, and ecological studies have described the remarkable adaptive capacity and resilience of foragers,

including how they have dealt with the myriad of socioecological changes (Berkes & Jolly, 2001; Bodley, 1999; Fortier, 2009; Hitchcock & Sapignoli, 2016; Jones, 2016; Lee, 2016; Marlowe, 2002; Minter, 2010; Woodburn, 2005). The resilience-oriented ethnographic research has provided several explanations for the continued persistence of foraging into the 21st century. Some researchers indicate that foraging provides more social and economic benefits than other livelihood strategies in particular natural environments (Codding & Kramer, 2016; Bliege et al., 2016; Gurven et al., 2015; Lee, 2016). For example, Woodburn (1988) and Marlowe (2002) argue that the Hadza remain foragers because their environment does not support farming and pastoralism, thus have experienced minimal incursion from outsiders. Others point out that foragers have maintained their traditional way of life because of their shared local ecological knowledge and belief systems. Fortier (2009) describes that the Rautes of Nepal consider themselves "children of God" who demands that they hunt monkeys (Fortier, 2009: 5). This belief in part is the reason that the Rautes have actively resisted the daily urgings by the government and neighboring communities toward assimilation to a farming lifestyle.

In an attempt to explain what resilient strategies foragers use to ensure survival and remain resilient, ethnographic studies have identified a wide range of subsistence activities. Commonly identified strategies include high mobility (Fortier, 2009; Lewis, 2005b; Lye, 2013), paid labor, and diversified hunting and gathering activities (Berkes & Jolly, 2001; Kelly, 2013; Minter, 2010), as well as developing networks or "reciprocity" between communities to share material and information (Cashdan, 1985), practicing intergroup trade and exchanging resources, and "making friends" outside of their community (Lye, 2013). Foragers' responses to the forces of the market economy also include active resistance to external changes (Fortier, 2009; Hitchcock & Sapignoli, 2016; Jones, 2016), adopting new opportunities (e.g., wage labor, farming, and trading) and integrating them to their local livelihood practices, and blending new skills and technologies into their foraging practices, such as the Botswana San using horses and the Inuit using snowmobiles to distant hunting areas (Berkes & Jolley, 2001; Hitchcock & Sapignoli, 2016; Gurven et al., 2015; Lee, 2016; Minter, 2010; Wenzel, 2016).

The literature above have provided detailed accounts of strategies foragers use to deal with dramatic culture change and maintain cultural resilience, but the interpretations of the research data tend to focus on what local people do rather than on what local people think and feel about the changes, i.e., they utilize etic analysis of risks and response strategies. Few studies have used voices from foragers to understand their perceptions and views of risks, and the strategies they use to sustain themselves. For instance, Gurven et al. (2015) examined how traditional sharing practices remained resilient among Tsimane Amerindians of the Bolivian Amazon despite the incursion of market economy. According to their study, extensive sharing has persisted because it enhances social cohesion among group members and helps them survive risks that the market economy cannot address, but the study does not discuss how local people view these changes. Meehan et al.'s (2017) study of childcare among the Aka hunter-gatherers in central Africa found that the local childcare practices persisted for 20 years despite

many social-economic changes. They explain that the Aka childcare practices remained because of its parent-to-child (vertical) transmission over generations. The study used detailed observational data for over 20 years, but does not mention how the Aka community members described the experience of the changes and what strategies they used to maintain their basic cultural features of childcare.

Similarly, Napitupulu et al. (2017) assessed the patterns of sharing among the Puanan Tubu hunter-gatherers of Indonesia. They found that the indigenous practices of sharing prevailed although the amount shared varied depending on the type of items: non-market products were shared more frequently than purchased food items. The study illustrated the changes and continuity in giving and receiving practices among the hunter-gatherers, but it provided little evidence on local views about what contributed to the persistence of sharing practices. Kramer & Greaves (2017) provide archeological and ethnographic evidence to point out that the Pume foragers retain hunting and gathering even when they have options of transitioning into farming. However, they provide no evidence about the local views on the changes that threaten their way of life, nor the strategies the people use to sustain foraging as their cultural identity. Marlowe (2002) and Jones's (2016) studies with the Hadza provide historical, archeological, and ethnographic evidence to show that foraging and mobility have continued until today despite frequent pressures to assimilate and adopt farming. While Marlowe agreed with Woodburn (1988) that the resilience of the Hadza foraging lifestyle was because their environment did not support framing nor pastoralism, Jones (2016) argued that mobile foraging persisted because of its compatibility with the sharing ethic of foragers. Neither study, however, included interviews with local people about their perceptions of risks nor of the strategies they used to cope with the dramatic changes. Lye's (2013) study with the Batek of Malaysia found that making friends with neighboring farmers along with mobility across a resource-extensive territory helped them reduce social-ecological risks. This study provided detailed ethnographic explanations of local, diverse livelihood practices, but did not include local perceptions of risk and resilience strategies.

A few studies have addressed the local perceptions of changes and response strategies. Lee's (2016) study with the Ju/'hoansi assessed how the foragers perceived the foraging versus the sedentary life in the village, but did not study the local views about strategies people have used to keep foraging as their main subsistence strategy. Lewis (2005b) compared the Mbendjele Pygmy foragers' conceptions of forest resources and property ownership with that of the local farmers and the national government, but provided limited evidence on how the people identified the impacts of global capitalism on forest resources, foraging practices, and coping responses. Fortier (2009) examined how the Rautes hunter-gatherers of Himalaya perceived the forests and their attachment to monkey hunting. However, her ethnographic interpretation dominates the explanation about how the Rautes's belief system and conscious avoidance of active involvement with farmers enabled them to remain resilient. Minter (2010) reported the challenges to the cultural survival for the Agta hunter-gatherers of Philippines, but did not discuss how the local people perceived the challenges or how they

ranked the diverse survival options.

This paper builds on the findings of previous ethnographic studies of foragers' experiences of and resilience to the ecological and social risks by examining the local perceptions of risks and resilience strategies. It assesses whether local views are similar or different from etic analyses of previous studies, and whether or not emic approaches and analysis provide any additional insight into how foragers adapt to dramatic culture change. The paper examines how the Chabu foragers of southwestern Ethiopia, currently under substantial pressure to adapt to new ecological, socioeconomic, and political challenges, view and prioritize risk factors and survival strategies that enhance cultural resilience. The concept of cultural resilience is used as it is defined by Crane (2010: 19) as "the ability to maintain livelihoods that satisfy both material and moral (normative) needs in the face of stresses and shocks: environmental, political, economic or otherwise." The paper aims to: 1) enhance our understanding of how foragers prioritize risks and respond in ways that contribute to their cultural resilience, 2) introduce the Chabu culture and their social-ecological-political setting to the ethnographic literature because few anthropological studies exist on this group, and 3) to provide local views of risk perceptions and survival strategies that may be useful to development workers implementing changes to address the challenges facing the Chabu community.

ETHNOGRAPHIC BACKGROUND

1 The Chabu Location and Population

The Chabu reside in the highland forests of southwestern Ethiopia (Fig. 1) in three regional states, the Southern Nations, Nationalities and Peoples Regional State (SNNPR), Oromia Regional State, and Gambella Regional State (Dira, 2016; Dira & Hewlett, 2017). However, they are not officially recognized as an independent ethnic group in Ethiopia, and as a result were not represented in the national population and housing census conducted in 2007. Hence, the accurate, total population is not known, and existing estimates vary. Linguists estimated the total population size as between 400 and 800 individuals (Schnoebelen, 2009). Missionaries estimated the Chabu population to be between 1,000 and 1,500 (Alemayehu, 2010). Kibebe (2015), who conducted a census of several Chabu settlements in 2011, reported 890 individuals. We conducted a census in 2012 and 2013 in 11 forest settlements and found 417 individuals. If it was possible to census all known settlements, we estimate that the Chabu population may be about 1,500.

2 Nomenclature and Language

For about 40 years the Chabu were called "Shabo" or "Sabu" by linguists (Schnoebelen, 2009), but from the most recent and extensive (over 6 months) linguistic fieldwork to date by Kibebe (2015), Chabu (or Tsabu) is what the people call themselves. A neighboring ethnic group, the Majang, call them "Mikeyir," or

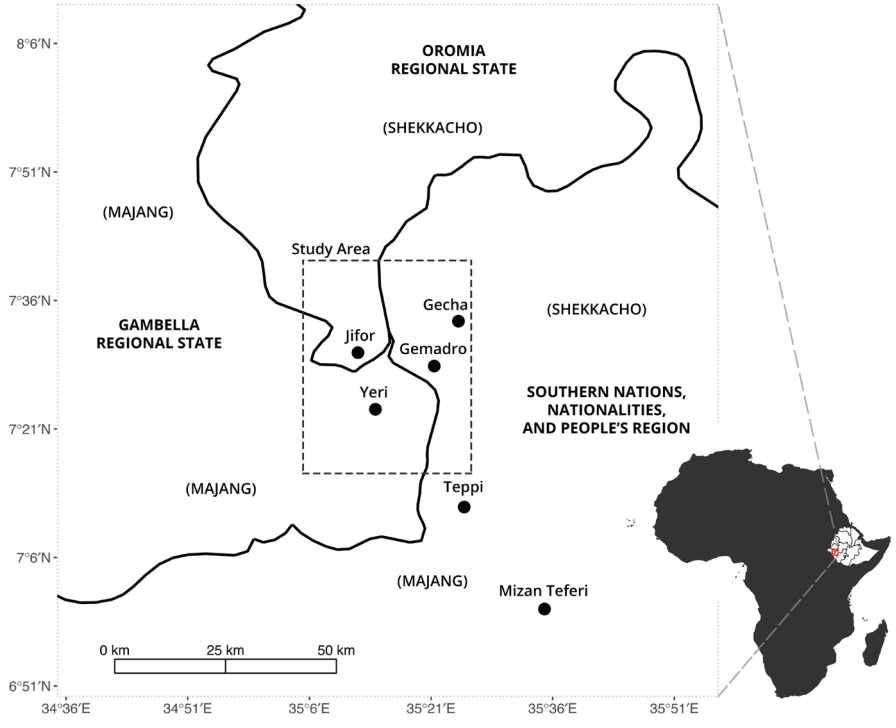

Fig.1. Location of Chabu and neighboring ethnic groups (Map by Richard E. W. Berl)

its renditions such Mikair, Mekeyir, and Mekeyer. (Majang is the singular form and Majangir plural, but the singular form is used throughout this paper.) Another ethnic group, the Shekkacho call the Chabu, "Shakko." (An abbreviated form for the Shekkacho, Shekka, is used throughout the paper.) Government administrators in the zones occupied by the Majang and Shekka call the Chabu with these respective terms. The authors asked the Chabu elders, middle-aged adults, and adolescents how they referred to themselves, and how they felt about the names called by their neighbors. All of the informants indicated that they called themselves Chabu, referring to both the singular and plural, and were not happy about the different monikers as they were generally derogatory, referring to their reliance on forest resources, that they ate "bad" things, or were not hard workers. The Chabu call their language Chawi kaw, which means "the mouth of the Chabu forest" (Kibebe, 2015).

3 Ecology and Subsistence

The Chabu forests receive more annual rainfall compared to other parts of the country. The Chabu area is relatively warm and humid. It includes the Sheka

Forest Biosphere Reserve (UNESCO), and is cooler and less humid than the lowland tropical forest. There are two seasons, a dry season and a rainy season. Rain falls primarily between March and October. Average annual rainfall is about 1,500–2,000 mm (60–80 in). The elevation is between 1,000 and 2,500 meters (3,000–8,000 feet) and the average annual temperature is about 18–25 degrees C (60–80 degrees F). Characteristic species of the Afromontane rainforest include a mixture of broadleaf tree species: *Pouteria adolfi-friederici*, *Syzygium guineense*, *Polyscias fulva*, *Olea welwitschii*, *Diospyros abyssinica*, *Manilkara butugi* and *Cordia africana*. Smaller trees below the canopy include: *Allophylus abyssinicus*, *Chionanthus mildbraedii*, *Clausena anisata*, *Coffea arabica*, and *Deinbollia kilimandischarica* (UNESCO, 2018; Tadesse & Masresha, 2012).

Two large rivers, the Godore and Bagi, cut across the Chabu territory, and several smaller rivers throughout the forest are the tributaries of these two rivers. Most rivers in the forest are important for fishing. Godore River is the largest of all, and it divides the boundary between SNNPR and Gambella State in most parts of the Chabu territory. The area is rich in both plant and animal species. Studies in the Gemadro Forest next to the large Gemadro coffee plantation have recorded about 180 species of plants, and the Sheka Forest Reserve is reported to have over 300 species of plants, 50 mammal species, 200 bird species, and 20 amphibian species (Tadesse & Masresha, 2012).

The Chabu livelihood depends on the highland forest, which they prefer to reside in rather than in the open settlements with farming neighbors. Their basic subsistence strategies consist of hunting, gathering, small-scale farming, beekeeping, trade/exchange, and fishing. Hunting is the basic subsistence strategy of the Chabu men, who go spear hunting two to three days a week on average, depending on the availability of game and the season of the year. The Chabu hunt a broad range of animals including small antelope (duiker), large antelope, bush pigs, bushbucks, antelope, porcupine, and African buffalo.

The Chabu gather a wide variety of wild forest plants. Major food plants include *koo* (wild yam), *gobo* (fruit from the top of trees), and *molon* (wild cabbage), other fruits, nuts, mushrooms, and tree barks. *Koo* and *gobo* are the most commonly gathered foods, although the type and availability vary with the season in a year. Women conduct the most gathering, but men also participate, either independently or with women. Informants say that gathering is more reliable and easier than hunting. The first author gathered with women and the adolescent girls learning to forage. Locating and identifying edible plants in the forest was easy for the Chabu women due to their accumulated knowledge, but some women said that sometimes it took them several hours to reach the location of edible plants. Women collected a vast range of wild edible foods, and identified a number of medical plants in the forest.

Small-scale farming near their semi-permanent settlements complements the Chabu's foraging activities. Farm products include banana, *bakka* (taro), cassava, maize, and papaya. In farming practices, men and women undertake distinct tasks: men clear the forest, while women plant, weed, and harvest crops. Farming is becoming increasingly important as the opportunity for hunting and gathering diminishes with deforestation.

Trade and exchange also support the Chabu livelihood. The Chabu men and women regularly visit nearby markets and exchange various items with their neighbors. Men may sell game meat, fish, and honey, while women produce pottery to sell at the market every few weeks. Recently, a few Chabu men have started planting coffee for sale. A woman may take 5–10 pieces of pottery to the market and sell each for 20–30 Eth. Birr, equivalent to about $1.20 US per piece. Some Chabu also raise and sell chickens and eggs. They buy clothes, salt, soap, tobacco, cooking oil, hair oil, alcohol, and metal heads and blades for axes, spears, and machetes at the market.

Some Chabu men are beekeepers. They produce and sell honey, although the amount produced varies by season. Honey is a vital source of occasional cash income, particularly for newly married adults to pay the bride price. Fishing, although infrequent, is also part of the Chabu subsistence. The Chabu men fish with line, primarily to sell their catch at the market. Fishing during the dry season is easier than during the rainy season, when the increased flow of water from rain makes catching fish difficult.

4 Social-Ecological-Historical Changes

The Chabu were mobile foragers until the late 1990s when they incorporated small-scale farming into their subsistence. Today they are forager-farmers, foraging several days a week, but also cultivating a few subsistence crops. For the last three decades, they have experienced dramatic changes to their forests due to the incursion of farming settlers to their highland forests and the encroachments of large-scale coffee plantation companies. Their highland tropical forests, central to their social-emotional-economic-spiritual identity for centuries, have been threatened by massive immigration of farming settlers and privately-owned coffee farms (Dira, 2016; Dira & Hewlett, 2017). For a variety of reasons, more Chabu are settling in villages and towns with farmers. As a result, the Chabu are under pressure to adapt to these relatively new social and political environments (Dira & Hewlett, 2017; Kibebe, 2015). The following paragraphs briefly describe some of the changes

The Chabu have had contacts with the neighboring communities and government bodies for some time. Until the 1960s, the Chabu were occasionally taken as slaves. Informants also mentioned that they used to pay head taxes to the local offices of the feudal government located in Mengeshi, Gambella Region and in Gecha, SNNPR, after the end of the slavery. Following the replacement of the feudal regime by the military government, the Derg, in 1974, the Chabu in Gambella Region started to have more exposure to outsiders. In 1983, the Derg government established a primary school, Jein Elementary School, near the Gubati village in the Chabu territory. The school served both the Chabu and the Majang communities, and created an opportunity for the Chabu to meet more people from outside their territory. In 1988, the Ethiopian government established a coffee plantation in Gambella Region that extended from the town of Kabo, previously the Chabu-Majang border, to Yeri. The plantation caused involuntary displacement of the Chabu from their homes with one month's notice without compensation.

Some Chabu men became employed in the plantation as logging assistants and guards, but their employment did not last long. The Chabu workers left, because they could not acclimate to the long, strictly controlled work, which was dramatically different from their egalitarian, sharing, and flexible foraging subsistence system. Also, the Chabu workers disliked the food provided at the plantation, and most people suffered diarrhea.

As the Chabu left the plantation and settled in their family forest settlements, occasional conflicts and violence continued between the Chabu and the plantation workers. The Chabu informants remembered several occasions of intimidation and physical assaults by the planation workers whenever the Chabu visited the market. In an incident that the informants identified as one of the violent conflicts between the Chabu and plantation workers in 1998, a group of Chabu men tried to fight an assault by the planation workers one market day, but the latter killed 4 Chabu and seriously injured 20. The conflicts and killings of the Chabu continues to the present. In September 2014, some Chabu were reportedly killed over a land dispute with the farming settlers, and many Chabu abandoned their Yeri settlement and moved to the forest settlements, while some were put in prison (Dira, 2016; Dira & Hewlett, 2017).

In 2010, some young Chabu started selling their forest land to non-Chabu farmers, mostly the Amhara and the Oromo from the north. These sales lead to immigration of settlers to the area. At the same time, the Gambella regional government established a huge protected forest area around Bureyi Lake, which significantly diminished the Chabu access to their forest resources.

In 2011, the Gambella regional government designed a resettlement program and relocated to Yeri a considerable number of Chabu from several family-forest settlements. Six to eight months later, more than 80 percent of the Chabu had moved back to the forest. Only a few younger adults and a female-headed household stayed in the Yeri settlement. The Chabu who returned to the forest said they starved in the resettlement project because they could not hunt, gather, nor hang beehives to collect honey. They felt insecure because of violence in disputes regarding the borders of government allotted lands with new non-Chabu settlers. Some also complained about new illnesses they had never experienced before.

Today, the Chabu are increasingly exposed to the market economy and consumer goods. Informants reported that their demand for consumer items increased but there were limited opportunities to address those needs. The Chabu young men in the Yeri area and some formerly in the forest settlements were starting to engage in paid wage labor, such as water vending, and loading and unloading of goods on market days.

Marriage with other ethnic groups has also increased since the incursion of farming settlers. The Chabu men in particular started marrying women from other ethnic groups, including the Majang, Shekka, Kafa, and Oromo. During the first author's fieldwork in 2014, there were 16 Chabu men in Yeri who had married women from the Kafa, Shekka, Majang, Oromo, and other ethnic groups. Most of these men had divorced their Chabu wives, while some young men were married for the first time. Interviews with the Chabu men about why more Chabu men chose ethnic exogamy revealed that they wanted to create relationships with

other groups and to learn an another way of life. Several informants also said that they thought women of other ethnic groups understood how to handle the village life. Kibebe (2015) made a similar observation, that Chabu men said that marrying women from outside groups was a sign of "civilization."

In SNNPR, the Chabu have gradually lost their settlements and forest to the privately owned Gamadro Coffee Plantation Company and Getu Farm, and to the Shekka farmers. In 2011, the Shekka administration divided and distributed the Chabu land in Dushi and Bane settlements to the Shekka farmers. The Chabu were again forced to go further into the forest. Today, Chabu in the SNNPR fear future displacement, again losing their settlements to investors or to the Shekka farmers.

In 2001, missionaries visited the Chabu in their major settlements to evangelize them. In 2005, many Chabu people converted to Protestantism and were baptized. The missionaries, through their development project, have started to establish informal basic education centers and health clinics. The missionaries affected sociocultural changes into the Chabu's world view, as the Chabu started to abandon some of their traditional beliefs and practices. The authors as well as Kibebe (2015) found that the Chabu currently practice both Christianity and their traditional religion.

METHODS

Data were collected between 2012 and 2014 during six months of fieldwork. This study utilizes freelist methods (Quinlan, 2005) supplemented by detailed unstructured and semi-structured interviews. Freelisiting is a part of cultural domain analysis, used to investigate how people think and feel about a variety of topics such as plants, animals, symptoms of illness, or about concepts such as occupations and roles (Barnard, 2011). The freelists can be analyzed in a variety of ways, but in this paper, the authors focus on calculating the perceived saliency of risk factors and survival strategies. Composite saliency is calculated in two steps (Quinlan, 2005). First, the saliency score of freelisted items by each individual respondent is calculated. Items in the list are ranked inversely, i.e., the final item listed is given a value of one, and the values increase as the rank moves up the list. The rankings in an individual's freelist are divided by the number of items the individual listed. Second, composite salience is calculated by totaling the salience scores for all respondents for each item. This sum is then divided by the total number of respondents.

Freelists were collected from 42 (21 men, 21 women) Chabu adults aged between 21 and 68 years. Individuals were selected using a snowball sampling technique. Prior to beginning the research, informed consent was obtained from informants as per the Washington State University IRB #12972-001. After informants were given a brief introduction to the research, they were asked to list the times or situations during their life that were difficult to survive, either currently or in the past. After informants completed the freelist, they were asked to review their responses and provide more detail about each item they listed. When this

was completed, informants were then asked to list the knowledge or skills that enabled them to survive the difficult times they mentioned. As in the first freelist, informants were asked for more detail after they finished the list. Freelists were conducted privately, usually at the informant's home as a part of the house-to-house survey. Translators communicated with the Chabu in Chawi kaw, the language of the Chabu people and an Amharic version of the interview was used to record the Chabu response. Each freelist took about 7–10 minutes, while the semi-structured interviews that followed took about 15–20 minutes each. Anthropac 4.98 (http://www.analytictech.com/anthropac/apacdesc.htm) was used to analyze and calculate the saliency scores of the freelists.

In addition to conducting the diverse interviews, the first author actively participated in the daily activities. He devoted a considerable amount of time informally observing the social and ecological contexts of daily activities, and how the people interacted with their environments individually and in groups. He observed the practice of food sharing, people helping each other at the time of sickness and deaths, and young people working in wage labor for farmers.

RESULTS

This section identifies and describes the salient risk factors as well as strategies that have contributed to Chabu's cultural resilience. It presents the Chabu perceptions of and experiences of difficult life events, and resilience strategies from freelists and open-ended interviews on each item of the freelist. Salience analysis of the freelists identified the times, situations, and events that the Chabu perceived as difficult for individuals, their families, and the community to survive. Freelisters also identified the coping strategies. Each risk factor and survival strategy identified in the freelists was also discussed and described by the respondents in detail.

1 Salient Social-Ecological Risks

Freelisters identified a total of 11 difficult situations. The number of such events identified by an individual varied from two (low) to seven (high). Table 1 presents the salience scores of the top 10 factors for all adults.

The Chabu felt that deadly disease, food shortage, and lack of cash were by far the most salient risk factors impacting their lives. The composite salience scores of the other 7 items are substantially lower than those for the above three items. Greater detail for each of these perceived risk factors is provided below.

Descriptions of perceived risk factors

1. Deadly disease. The Chabu reported that outbreaks of deadly diseases had occurred several times and significantly affected the community. The respondents were usually unable to identify specific names of the past epidemics they experienced, but they could describe the symptoms of the illnesses, such as diarrhea,

Table 1. Risk factors mentioned by Chabu adults

Risk factors	Percentage of informants that mentioned	Composite salience (Σ/N, N = 42)
Deadly diseases	90.5	0.698
Food shortages	78.6	0.531
Lack of cash	78.6	0.444
Crop failures	42.9	0.195
Deforestation	33.3	0.198
Death of spouse	11.9	0.086
Divorce	11.9	0.085
Conflict	11.9	0.071
Accident while foraging	7.1	0.032
Death of parents	2.4	0.005

headaches, and sores. Beyond occasional epidemics, the Chabu expressed their concerns for seasonal encounters with illnesses such as malaria (*qindhi*). They also mentioned respiratory diseases (*kuwan dhoso*) and diarrhea (*qaxama*) as common ailments that occurred suddenly and at times became fatal. During the 2013 fieldwork, the first author witnessed the death of four infants in a one-month period in two adjacent settlements, possibly due to pneumonia as the informants said that the infants were coughing and had difficulty breathing.

2. Food shortage. The Chabu had experienced both seasonal and unexpected food shortages. The informants reported *bangi*, the rainy season that goes from May to July, as a lean season and a difficult time of the year to live in as it was difficult to search for food in the rain in the forest, and not a good time for gathering and fishing. Farm crops and honey were seldom available at this time of the year as well. The Chabu refer to this time of the year as *laaki*, a season of shortages of everything and as *malessi*, the time of hunger. Foods available during this season are *bakka* and *koo* yam, collected from the forest as well as grown in farms. The women informants reported that during *bangi*, they skipped meals, perhaps eating only once a day. Senior adults were reported to be more affected by *bangi* than people of other age groups because many became weak and were at greater risk of infection from diseases, some of which might prove fatal. Occasionally, unexpected food shortages happen when small-scale maize and taro farms failed due to planting too late, excessive rainfall, or windstorm.

Deforestation and encroachments of farms also lead to food shortages in the Chabu community. Some women during the unstructured interviews indicated that extensive deforestation worsened food scarcity more than in the past, and gath-

ering food in the forest was difficult in the forest areas near most settlements.

3. Shortage of cash. In the past, the limited cash income from the sale of forest products was used to purchase a few consumer goods. Today, the Chabu are more sedentary, which has led to greater exposure to and desire for the market items, such as clothing and food. The freelisters indicated that their need for cash has increased, but their local sources of cash income, i.e., the forest resources, access to rivers, and honey production, have declined. The Chabu in Yeri town and in deforested villages reported that they depended on purchased foods including meat for their daily survival, but had limited source for cash.

4. Crop failure. Loss of farm crops due to rainfall and drought are rare in the Chabuland. However, interviews and observations revealed that some crops, such as maize, fail due to either windstorms or changes in rainfall pattern. In the 2014 *ciica*, the dry season in the Chabuland, most households interviewed in Jifor semi-permanent settlement reported the loss of maize farms. The first author also observed fields with dried up maize plants. The residents said that the rainfall stopped early on in October before maize was grown, a climatic situation which was unusual. Normally the rainy season extends to November, and produces a good yield of maize in January. Indeed, the first author observed some fields where maize was ready for harvesting and people were eating. He asked why those fields did not dry up, and the answer was that those people who planted early did not experience the loss.

5. Deforestation. The Chabu explained that deforestation due to encroachment by immigrant farmers and expansions of coffee plantation companies put the Chabu livelihood at risk, impacted their access to the resources of game, honey, food and medicinal plants, affecting their economic, social, and emotional life. Some informants in the Gambella state claimed that they could no longer treat illnesses with traditional remedies, as most forest plants used as medicine have disappeared. The interviews also revealed that most Chabu adults, including the field assistant, despaired about the future of the Chabu community. Two elder informants said, “These days our spirits are worried too much; in the past, we used to obtain food plants and game easily, but now we go a day-long trip for no luck, we come home with empty hands. Settlers do not let us go through the forestland they purchased from us. We are scared of them and worried about the future of our children.”

6. Death of spouse. The Chabu who experienced the death of their spouse said that life became very difficult for them. Male respondents said that the death of their wives affected them because they needed women’s help with farming, planting, protecting the farm from monkeys, and harvesting. Also, they said they could not go on hunts as frequently as they were accustomed to because of limited food: they were hungry both when they went and returned. Women informants also stated difficulties with the loss of a spouse. One informant said that when her husband died leaving her with three younger children, life became difficult

because she could not feed her children as well as before, because she had no help to clear the forest to plant taro and maize. She and her children also craved meat and honey. When her house was worn out, she had no option other than to move in with her brother. Life continued to be difficult for her until the children became *atteni*, i.e., adolescents, and were able to go on hunts, to clear forests for planting crops, and to make a house for her.

7. Divorce. Informants who mentioned divorce as a difficult event in their lives said that both men and women felt hungry. The women were not able to make a house nor obtain meat and honey. Some women also said that they had conflicts with their sisters-in-law when they moved to their brothers' homes after divorce.

Divorce is common among Chabu couples. Among the 67 informants participating in a separate semi-structured survey, 24 percent were divorced at the time of the interviews, 46 percent (31/67) had been divorced at least once, and about 22 percent (15/67) had been divorced twice or more.

8. Conflict. Informants mentioned that the neighboring Shekka and Majang used to abduct men and women for slavery in faraway places. Elderly respondents reported that the captors used to raid the denser settlements and the Chabu ceremonial drinking parties, *tajan*, and killed those who resisted. They also reported that the Chabu experienced conflicts and oppression from the government and the neighboring Shekka and Majang farmers. Until the mid-20th century, the Shekka and Majang slave raids were widespread in the southwest, and elsewhere in Ethiopia until the 1960s (Bahru, 1995; Freeman, 2002; Stauder, 1972).

The Chabu reported that conflicts associated with the *tajan* drinking party in which they drink locally prepared alcoholic beverage made from maize have decreased. However, the informants expressed concerns about the increased intensity of the market-day conflicts associated with too much drinking of *arake* and *teji*, alcoholic drinks made by the farming settlers to which the Chabu were introduced with the immigration of new settlers. The Chabu visit the weekly markets in Yeri and Gamadiro, and drink *arake* and *teji*, a practice which sometimes causes conflicts.

The Chabu said that the expansion of coffee plantations was a cause of occasional conflicts between the newcomers and the Chabu over land. Violence could erupt between the two as the Chabu walked through the plantation territories to hunt and to go to market. During the fieldwork periods (2012–2014), the first author heard reports of violent conflicts between the Chabu and Shekka people that resulted in the death of three Chabu men near the Gemadiro market.

9. Accidents while foraging. The Chabu are aware of the risks associated with foraging and the behaviors of dangerous animals while in the forest. Informants mentioned that accidents could occur while they are on hunting and gathering activities, including attacks by game animals such as bush pigs or other dangerous animals including snakes, leopards, and hyenas. Also, the freelisters mentioned the risks of falling from trees while gathering fruit or hanging beehives. In the

summer of 2014, one of the field assistants told the first author that one man from the Dembel settlement died when he fell from a tree while he was hanging a beehive. Another respondent said that his mother was attacked and eaten by hyenas while she was gathering in the evening.

10. Death of a parent. Some Chabu reported that they experienced difficulty when one or both of their parents died. One male informant said that he was late to learn hunting and going to *kalse* (a camp in the forest where the Chabu make beehives) because his father died before he acquired the skills. No one taught him until he went to his uncle later when he had matured. The death of at least one parent was not uncommon for the Chabu. From another sample of respondents participating in semi-structured interviews, only 10 percent (7/67) reported that both of their parents were alive.

Section Summary

Overlap emerged in the risk factors when informants were asked to provide more detail about each item. For example, some informants that freelisted food shortage and death of spouse described crop failure when asked to provide more information about the former. Likewise, when some Chabu freelisted deforestation as a risk factor, they described cash and food shortage associated with it. The authors feel that the freelist method provided insight into the ranking and saliency of how local people perceived difficult times even though the more in-depth interviews revealed some overlap.

Table 2 analyzes the salience scores of Chabu men and women separately, and demonstrates that their perceptions of risks were generally similar. The largest difference by gender was for deforestation. Salience scores show that men more than women perceived deforestation as contributing to difficult times. Men were more likely than women to describe the effects of deforestation, such as diminished hunting and beekeeping. Women were less likely to mention the impact on gathering.

A few other lower ranked risk factors were also slightly different. For instance, men identified divorce and conflict more frequently than women. Men were more likely than women to have conflicts among themselves when they drink, or with the neighboring farmers over land. Also, most Chabu adults recognized divorce as a difficult event, but the slight difference suggests that more men than women had experienced it and felt it as risky. Also, more women than men mentioned accidents associated with foraging as risky. Foraging accidents such as falling from trees and hunting accidents mostly happen to men, but women also have accidents while gathering, as in the above case of a woman who was attacked and killed by a hyena while gathering in the evening. Women also felt that accidents experienced by their husbands and sons posed great risk to their families.

Table 2. Salient risk factors mentioned by Chabu men and women

Risk factors	Percentage of informants that mentioned		Composite salience (Σ/n, n = 21)	
	Men	Women	Men	Women
Deadly diseases	100.0	81.0	0.717	0.679
Food shortages	81.0	76.2	0.582	0.479
Lack of cash	85.7	76.2	0.499	0.389
Crop failures	57.1	28.6	0.254	0.137
Deforestation	57.1	9.5	0.349	0.095
Death of spouse	14.3	9.5	0.075	0.054
Divorce	14.3	9.5	0.076	0.048
Conflict	14.3	9.5	0.095	0.048
Accidents while foraging	4.8	9.5	0.01	0.095
Death of parents	4.8	-	0.01	-

2 Resilience Strategies

The 42 informants were also asked to list strategies that helped them survive the risks that they mentioned. Semi-structured interviews followed the freelisting exercise to allow informants to expand and explain their personal experiences and responses. Freelisters identified one to four strategies, while one woman reported only one, which was "help from others." Table 3 provides the composite salience scores for the 9 strategies that the informants mentioned.

Helping each other and sharing, and acquiring some knowledge on farming, were by far the most salient resilience strategies. The Chabu strongly value sharing and trust in others. This value was the basis of their primary source of their resilience to survive difficult situations, including sickness, food shortages, deaths in the family, and other risks. With more intensive deforestation, the Chabu perceive that the knowledge on and adaptation of small-scale farming has become an important part of their livelihood.

Descriptions of Resilience Strategies

1. Help from others. Most informants reported that whenever they encountered a food emergency, needed cash, had an illness, or lost a spouse or parent, they received help from their relatives, neighbors, and friends. All informants indicated that they survived food shortages with the help from their friends, neighbors, or relatives. One Chabu male said that when he fell from a tree and suffered from the injury for seven months, friends and relatives renovated his house and provided him and his family with meat and honey until he recovered. Informants indicated that food sharing was a core value by which the Chabu buffer the risk of hunger. Neighbors share almost every meal daily without any obligation of

Table 3. Saliency of survival strategies mentioned by Chabu adults

Resilience strategies	Percentage of informants that mentioned	Composite salience (Σ/N, N = 42)
Help from others	78.6	0.675
Knowledge of farming	69.0	0.486
Change settlement	26.2	0.123
Gathering	21.4	0.143
Hunting	16.7	0.077
Beekeeping	16.7	0.105
Pottery	14.3	0.099
Wage labor	7.1	0.040
Storing food	4.8	0.014

immediate reciprocity. Both male and female respondents mentioned the names of relatives and neighbors said they received food from whenever they were hungry. One woman said, "I go to Aster (cousin) if I am hungry and have no food to eat. If Aster does not have one [sic], then I go to the house of Hirut (another relative)." When individuals needed money, they received it from their relatives or friends. Another woman in Yeri town said, "My big problem is a lack of cash but whenever I have a serious need, I go ask my brother." One male informant also responded likewise when asked about food shortage saying, "Currently my farm is not ready and I do not have anything to eat but I will be okay because we share food with our neighbors. They give me food now because in the future when they need food they come to me and I will give them." In Jifor, the authors observed adolescents and adults freely walk in, sit down, and eat food at any house in the neighborhood whenever food was ready. The first author also observed Chabu residents of Yeri town sharing food and tea, just as they used to share *qaaro* (a drink from wild coffee leaves) in their forests settlements.

2. Farming. Freelisters reported that new knowledge about farming has helped them reduce seasonal food shortages. Both Chabu men and women informants said that farming, especially planting maize and taro, complemented their subsistence and helped them survive food shortages. Elderly informants reported that before they adopted planting maize, they used to face hunger during *bangi*. Almost all Chabu interviewed reported that they foresaw farming as an increasingly important part of their livelihood, as deforestation threatened their foraging activities. They said, "People who plant maize and taro on a big farm survive *bangi* easily. They also help others who do not have enough to eat." Respondents from semi-permanent settlements indicate that the Chabu are planting banana, sugarcane, and coffee on their farms.

3. Changing settlements. Some freelisters stated that in the past they moved

settlements when food shortage, diseases, or a death in a family arose. However, informants living in semi-permanent settlements said that they temporarily moved for one or two months to forage or for wage labor, or to plant maize on the riversides, and would return to the main villages after they earned some cash or harvested the produce.

4. Gathering. Most respondents reported that during food emergencies, the first thing they would do was to go to the forest to gather. If they do not find much they ask friends or relatives for food.

5. Beekeeping. Chabu reported that beekeeping helped them cope with cash shortages. Cash obtained from the sale of honey was important to purchase farming and hunting tools, to pay the bride price, to cover health expenses and to buy commodities for household consumption.

Fig. 2. Chabu children taking pack of shared meat to their homes (Photo courtesy by Richard E. W. Berl)

6. Hunting. The Chabu said that besides the regular hunting for meat, they went hunting to address food or cash shortages: they sold game meat and fish when they needed cash. One informant said, "If I am hungry, but have no food in the house, I race to the forest, kill any game available, and quickly cook the meat and eat it. If no game is available, I find some fruits in the forest and feed myself." Several others also reported that hunting was important to relieve food and cash shortages. Kibebe's (2015) study reported that only the young generations sold game meat, but the elderly did not.

7. Pottery. Women freelisters said that the sale of pottery helped them earn cash, and buy food and other items.

8. Wage labor. Few freelisters mentioned paid labor as one option to deal with difficult times. Both male and female informants said that when they faced an acute food shortage and cannot receive food from their Chabu friends, they go to their neighboring Shekka friends, offer them labor for help with farming, and in exchange get food for the day for themselves and their families. Few Chabu men work for a wage in the plantation companies or for individual farmers whenever they need cash and if a job is available. In Yeri, the first author observed the Chabu young adults working for the farming settlers, fetching water on carts, and loading and unloading goods on market days.

9. Storing domesticated and wild foods. The Chabu mentioned that they stored maize, cassava, and taro to use in *bangi*. Some individuals, who have forest lands in the watershed, plant and keep taro to eat during *bangi*. Informants also said that they stored food resources from the forest. They said they went to the forest during the *ciica* dry season to find wild *koo* yam, removed the leaves, and kept the edible root in the ground to use during *bangi*. In an open-ended interview, informants said that putting aside farm produce for food emergencies was becoming more common, because foraging alone was no longer reliable as in the past due to deforestation. Some informants said that they consumed most produce (maize, taro) from their small-scale agriculture during the harvest season and kept only a small amount in reserve. They store maize in their individual houses, but the taro is kept in the ground.

Section Summary

The Chabu use multiple strategies to survive difficult times. As were the cases for the overlap in the risk factors above, overlap emerged among resilience strategies when informants were asked to provide more detailed information on each item on their freelist. For instance, the Chabu households may use food sharing, farming, and foraging (hunting, gathering, and honey production) simultaneously to survive food shortages. Similarly, food storing, farming, and foraging may be used at the same time. The salience scores provide a ranking of the resilience strategies respondents identified during the freelisting.

Table 4 provides an analysis of salience by gender. The saliency of the top two survival strategies were similar for men and women. Other items showed

Table 4. Saliency of survival strategies mentioned by Chabu men and women

Resilience strategies	Percentage of informants		Composite salience (Σ/n, n = 21)	
	Men	Women	Men	Women
Help from others	81.0	77.3	0.702	0.652
Knowledge of farming	81.0	54.5	0.575	0.379
Change settlement	33.3	18.2	0.167	0.076
Gathering	-	45.5	-	0.284
Hunting	33.3	-	0.155	-
Beekeeping	33.3	-	0.210	-
Pottery	-	31.8		0.212
Wage labor	9.5	4.5	0.032	0.045
Storing food	4.8	4.5	0.016	0.011

substantial differences between men and women. For example, men viewed temporary changes in residence as a more salient survival strategy than did women. Both men and women used seasonal settlement changes but men more likely went to different places for a short time, for example, to work for coffee companies, while the rest of family stayed in the semi-permanent settlements. The difference in several other strategies are linked to the sexual division of labor. For example, gathering and pottery skills were particularly important for women, while beekeeping and hunting were important to the survival of men.

DISCUSSION

1 Chabu Emic Contributions to Etic Analyses about How Foragers Survive and Adapt to Pronounced Culture Change.

Before discussing what the Chabu thought and felt about surviving difficult times it is important to point out that this is one of the few studies to examine what foragers perceive as social-ecological stressors during conditions of substantial political-economic change. The most salient stressor for the Chabu is disease. Studies of causes of death in foragers demonstrates the importance of disease on the morbidity and mortality of foragers (Froment, 2014; Hewlett et al. 1986), especially in tropical forest settings. This is one of the few studies to demonstrate that disease is also a top concern for the local people, even more so than deforestation and the seasonal food shortage. Seasonal shortages of both wild and domesticated foods and lack of cash to purchase marketed goods, were also considered highly salient stressors. The relatively high ranks for these stressors indicate that the new farming practices and the increasing importance of the market economy have impacted the Chabu daily life.

2 Adaptive Strategies Enumerated by The Chabu Consistent with The Previous Etic Analyses

Most adaptive strategies to social-ecological changes mentioned by the Chabu are more or less consistent with previous studies, such as developing and maintaining sharing networks (Cashidan, 1985), adopting and integrating new subsistence opportunities with knowledge on farming, storing food, engaging in paid labor (Berkes & Jolley, 2001; Kelly, 2013; Minter, 2010), high mobility (Fortier, 2009; Lewis, 2005b; Lye, 2013), and practicing intergroup and non-Chabu trade with honey and pottery (Lye, 2013). Sharing food, labor, and material resource is extensively practiced among the Chabu. The Chabu have adopted from the neighboring Shekka and Majang farmers the techniques of planting, harvesting, and storing maize, and integrated them into their subsistence strategies. The Chabu also work as wage laborers in coffee plantations or work for the Shekka farmers to mitigate seasonal food and cash shortages. While men sell honey, women make and sell pottery to the neighboring farmers and new comers. The immigration of settled farmers has created more demand for pottery as farmers buy from them cooking pots, coffeepots, and clay pans.

The literature suggests that all of the above are important, but this study demonstrates that sharing is the most salient for local people. Chabu recognize mobility, trade and paid labor as important adaptive strategies, but sharing is by far the most essential cultural norm for survival.

3 Adaptive Strategies not Mentioned by Chabu but Discussed in Previous Etic Analyses

The Chabu do not appear to be diversifying foraging activities, so it makes sense that it was not a salient response strategy. In terms of active resistance to external change, it is interesting that Chabu list physical-social-economic conflicts with immigrant farmers and others but: a) it is not very salient (ranked 8 out of 10 in Table 1, and only about 10% of male and female respondents mentioned these sorts of conflicts), and b) the Chabu did not mention active resistance as an adaptive strategy they used to survive difficult times. This is somewhat surprising, because several incidents have taken place where the Chabu have actively resisted (Dira & Hewlett, 2017). It may be that Chabu did not think of active resistance when asked in general how they responded to difficult times, but they said their resistance was linked to mobility. For example, when they did not like the resettlement program, or when they were confronted with outsiders, they moved and changed settlements to the forest.

CONCLUSION

The Chabu, like many other contemporary foragers, have faced tremendous challenges that threaten their physical and cultural survival, but they are resilient. Their survival strategies described in this paper are consistent with the views of

hunter-gatherer researchers that foraging is a complex and resilient adaptive system. Nevertheless, the Chabu perception of risk and resilience strategies implies that the challenges facing contemporary foragers and the survival strategies they use vary depending on historical, social-ecological, political, and sociocultural contexts. Studies of local perceptions provide insights into those variations and the diverse strategies foragers use to adapt to different contexts of a changing world and maintain cultural resilience.

Overall, the Chabu data emphasize that foraging continues to persist and is a viable subsistence strategy in the context of dramatic, rapid change. They have incorporated a diversity of new knowledge and adaptive strategies, but forager knowledge and sharing patterns enable them to adapt to these very stressful times.

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Corresponding Author's Name and Address: Samuel Jilo DIRA, *Department of Anthropology, St. Lawrence University, 114 Piskor Hall 23 Romoda Drive Canton, NY 13617, USA.*
E-mail: sdira [at] stlawu.edu